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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,594	07/20/2006	Naohisa Higashiyama	292504US40PCT	1654

22850 7590 10/05/2010

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EXAMINER	
ROSATI, BRANDON MICHAEL	
ART UNIT	PAPER NUMBER
3744	

NOTIFICATION DATE	DELIVERY MODE
10/05/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/586,594	HIGASHIYAMA, NAOHISA	
	Examiner	Art Unit	
	BRANDON M. ROSATI	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/8/2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 5-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3, and 5-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to the amendment filed on 6/8/2010. Currently, claims 2 and 4 have been canceled and claims 1, 3, and 5-19 are pending. This actions contains a New Grounds of Rejection. Since this new grounds of rejection did not result from an amendment to the claims, this Office Action is being made non-final to afford the applicant the opportunity to respond to the new grounds of rejection.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 3, and 6-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi et al. (U.S. Pub. No. 2004/0159121 A1) in view of Higashiyama (U.S. Patent No. 6,973,805 B2) in further view of Rong (U.S. Pub. No. 2002/0079093 A1).

Regarding claim 1, Horiuchi et al. disclose in Figures 1-6, all the claimed limitations including the heat exchanger having an inlet header (11), an outlet header (12), and a passage (i.e. tubes) which communicated the headers, (Paragraphs [0245] and [0261]). Horiuchi et al. does not disclose a closing member with a guide formed of a segmented sphere and a projecting end face. However, Higashiyama disclose in Figure 5, a guide (61) with a projecting end face and an inclined plane. Hence, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the teachings of Horiuchi et al. with the segment sphere of Higashiyama because doing so would vary the flow characteristics of the fluid (i.e. increase turbulence, etc…) and thus increase the overall amount of heat exchange. Further, Rong discloses in Figure 13, closing member (60). Hence, it would have been obvious to one having

ordinary skill in the art, at the time the invention was made, to modify the combined teachings of Horiuchi et al. and Higashiyama with the closing member of Rong because doing so would vary the flow characteristics of the fluid (i.e. increase turbulence, etc…) and thus increase the overall amount of heat exchange.

Regarding claim 3, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including an inlet header with a diameter (see Horiuchi et al. Figure 3). Although the exact diameter is not given it would be an obvious mechanical expedient to vary the diameter depending on the amount of fluid desired to pass through the header.

Regarding claim 6, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including first and second closing portions (see Figures 13 and 14 of Rong).

Regarding claim 7, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including a joint plate (i.e. end plate) (20) (see Figure 1 of Higashiyama or Rong).

Regarding claim 8, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including the inlet header. Although the exact dimension of the deviation from center is not given it would be an obvious mechanical expedient to vary the diameter depending on the desired fluid characteristics.

Regarding claim 9, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including a joint plate which extends across the inlet and outlet headers (i.e. end plate) (20) (see Figure 1 of Higashiyama or Rong).

Regarding claim 10, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including inlet and outlet pipes (see Figure 1A of Horiuchi et al.).

Regarding claim 11, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including a constricted portion (see Figure 1 of Higashiyama).

Regarding claim 12, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including the joint plate having an expansion valve (see Figure 1 of Higashiyama or Rong).

Regarding claim 13, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including an intermediate header (see figure 3 of Horiuchi et al.).

Regarding claim 14, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including an inlet and outlet header. Regarding claim X, MPEP 2114 clearly states "While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus **must be** distinguished from the prior art in terms of structure rather than function. Because claim 14 fails to further limit the apparatus in terms of structure, but rather only recite further functional limitations, the invention as taught by Horiuchi et al., Higashiyama, and Rong is deemed fully capable of performing such function.

Regarding claim 15, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including the outlet header being partitioned. Because claim 15 fails to further limit the apparatus in terms of structure, but rather only recite further

functional limitations, the invention as taught by Horiuchi et al., Higashiyama, and Rong is deemed fully capable of performing such function.

Regarding claim 16, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including the inlet and outlet header formed by dividing one interior (see Horiuchi et al. Figure 3).

Regarding claim 17, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations including the partitioned outlet header. Because claim 17 fails to further limit the apparatus in terms of structure, but rather only recite further functional limitations, the invention as taught by Horiuchi et al., Higashiyama, and Rong is deemed fully capable of performing such function. It is noted that claim 17 contains a product by process limitation (i.e. the second member brazed to the first member) and that the product by process limitation does not limit the claim to recite the step, just the structure obtained by performing the step. Further, in product-by-process claims, "once a product appearing to be substantially identical is found and a 35 U.S.C. 102/103 rejection [is] made, the burden shifts to the applicant to show an unobvious difference." MPEP 2113. This rejection under 35 U.S.C. 102/103 is proper because the "patentability of a product does not depend on its method of production." In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claims 18 and 19, MPEP 2114 clearly states "While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus **must be** distinguished from the prior art in terms of structure rather than function. Because claims 19 and 20 fail to further limit the apparatus in terms of structure, but rather only recite further functional limitations, the invention as taught by Horiuchi et al., Higashiyama, and Rong are deemed fully

capable of performing such function. Further, the applicant should be reminded that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the structural limitations of the claims, as is the case here.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi et al. (U.S. Pub. No. 2004/0159121 A1) in view of Higashiyama (U.S. Patent No. 6,973,805 B2) in view of Rong (U.S. Pub. No. 2002/0079093 A1) in further view of Higashiyama (U.S. Patent No. 6,923,251 B2) (herein '251).

Regarding claim 5, the combined teachings of Horiuchi et al., Higashiyama, and Rong disclose all the claimed limitations except the specific angle of inclination of 15-20 degrees of the slanting plane. However, '251 disclose in Figure 5, a slanting plane which has an angle of between 15 and 60 degrees (see claim 6). Hence, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the combined teachings of Horiuchi et al., Higashiyama, and Rong with the inclined slanting plane of '251 because doing so would vary the flow characteristics of the fluid (i.e. increase turbulence, etc…) and thus increase the overall amount of heat exchange.

Response to Arguments

4. Applicant's arguments with respect to claims 1, 3, and 5-19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hayashi et al. (U.S. Patent No. 7,549,466 B2) discusses a heat exchanger.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRANDON M. ROSATI whose telephone number is (571)270-3536. The examiner can normally be reached on Monday-Friday 8:00am- 4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on (571) 272-4834 or (571) 272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BMR 9/28/2010	/Cheryl J. Tyler/ Supervisory Patent Examiner, Art Unit 3744